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ABSTRACT

The Anik-B Project is part of the two-year communications experiments for which the Anik-B satellite is being used. The project was designed to explore the possibilities of using Interactive Instructional Television (IITV) to provide distance postsecondary education for people living in widely scattered and sometimes inaccessible areas of British Columbia. The project proved to be both educationally feasible and acceptable to the people. This Overview, the first of six reports stemming from the project, deals with the historical progress of the project and includes comments on how the people involved responded to the project as a mediator of education. It also touches on aspects of the project dealt with in later reports. In addition, this Overview looks at the courses offered, the limits of the project, and some information gained during the conduct of the project. (KC)

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Anik-B Interactive Instructional Television Project

October 1, 1979 - May 31, 1980

Report Number One

Project Overview

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CE 028 547

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PROJECT REPORTS

The Anik-B IITV project is reported in a series of six reports numbered and titled as follows:

		COST
1.	Project Overview	$ 3.00
2.	The Technical System and Its Operation	$ 4.00
3.	Programme Description	$ 6.00
4.	Evaluation Perspectives	$10.00
5.	Financial Analysis	$ 3.00
6.	Administrative Structures and Procedures	$ 3.00

As the titles suggest, each report covers a different aspect of the project and each is separately bound. They are available from:

British Columbia Institute of Technology
Distance Education Department
3700 Willingdon Avenue
Burnaby, B.C., Canada
V5G 3H2

List Of Abbreviations

ACCESS	Alberta Educational Communications Corporation
BCIT	British Columbia Institute of Technology
B.C. TEL	British Columbia Telephone Company
CTS	Communications Technology Satellite
DOC	Department of Communications, Canada
IITV	Interactive Instructional Television
LCETs	Low cost earth terminal
PEMC	Provincial Education Media Centre
TV	Television
TVRT	Television receive with telephony transmit/receive

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WHAT IS ANIK-B[1]?

Anik-B is one of a series of communications satellites owned and operated by Telesat Canada. It was launched on December 15, 1978, and it has operating frequencies in both the 4/6 and the 12/14 GHz range. The 4/6 range is generally considered to be the commercial range, and is used for the distribution of commercial telecommunications of all types, including television and telephony, across Canada. The 12/14 GHz range has been used primarily for a two-year series of nation-wide communications experiments which will continue until February 1981.

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[1] ANIK is an Inuit word for brother.

WHAT IS THE ANIK-B INTERACTIVE INSTRUCTIONAL TELEVISION (IITV) PROJECT?

The Anik-B Project, popularly known by its abbreviated name "Anik", is part of the two-year communications experiments for which the Anik-B satellite is being used. The project was designed to explore the possibilities of using IITV to provide distance education for people living in widely scattered and sometimes inaccessible areas of British Columbia. In other words, the project was to be a long term test of whether IITV would be both educationally feasible and acceptable to the people it was designed to serve. If it were, then it would be an excellent means of making post-secondary educational opportunities as available to rural communities as they are to communities in the urban areas. In the event, the project showed that it is both feasible and acceptable.

WHAT THE OVERVIEW DISCUSSES

In this overview we deal with the historical progress of the project and include comments on how the people involved responded to the project as a mediator of education. We also touch lightly on aspects which will be dealt with in detail in the other reports in the series. In addition, we look at the necessary limits within which the project operated as well as the things we knew we wanted to know and some we discovered along the way.

WHAT, SPECIFICALLY, DID WE WANT TO FIND OUT?

We wanted answers to such things as: did IITV provide an effective medium for learning; what was needed in the way of administration; could several organizations co-operate successfully; was instruction in the ways of the medium necessary for the instructors; could regular classes be televised exactly as they are presented in the classroom; did the medium demand a particular kind of person as an instructor; was the equipment adequate; what would it cost to establish a permanent IITV system; what would the staffing needs be? Above all, we needed to find out whether the students found the medium acceptable. If not, why not and what could be done about it?

All of these concerns are discussed in this overview, but we shall begin with the limits, or constraints, within which the project was set up and operated.

CONSTRAINTS

The Ministry of Education, Science and Technology of British Columbia wanted to demonstrate the value and the innovative nature of interactive instruction via satellite. More important, however, the Ministry wanted to assess the needs of a permanent service should it be decided to institute this at a later time. To achieve this, the Ministry asked the British Columbia Institute of Technology (BCIT) if the Institute would be willing to undertake the project. Since the Ministry itself did not have unlimited funds, the project had to be run with the funds available and on a trial basis. However, depite this, the Ministry's intention was that all demonstrable extra costs incurred by BCIT or any participating college would be covered by the Ministry. The project would be further limited by the number of colleges which could be invited to take part. This number was dictated by the number of TVRT[1] terminals that the federal Department of Communications (DOC) could provide (initially five and later six[2]). One more constraint would be the time on the satellite which the federal government could give to the project. These conditions were accepted by BCIT and the colleges who had accepted the invitation of Dr. Walter Hardwick, Deputy Minister of Education, to participate[3].

The initial $217,000 from the Ministry of Education covered: the purchase of some equipment; the installation of the two send/receive classrooms at BCIT; initial organizational costs; and planning and travel costs associated with the project, including a planning meeting with the participating colleges which took place on March 30, 1979.

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[1] Television receive with telephony receive/transmit.

[2] In May/June 1979 DOC made five LCETs (low cost earth terminals) available to the project. These were offered to the participating colleges which brought the total number of receiving sites to eleven: see pages 10 and 11.

[3] See Appendix 1 for names and colleges and their respective receiving sites.

A further $115,000 was made available to the British Columbian participants by the Ministry of Education to cover the operating costs of the project. In addition to this, BCIT and the colleges collectively matched or exceeded this latter sum. This was done by rearranging their internal priorities and having some existing members of their staffs assign time to the project. Yukon and Alberta became involved in the project through their respective Departments of Education and were financed by their own governments.

All projects of whatever kind are subject to constraints, the commonest being finances, time and human resources. This project was subject to all three, however, from these constraints much was learned. In our hurried world there is seldom enough time to do things perfectly and something workable but less than perfection is the common result. Two groups given the same task and the same constraints can achieve very different results: one will make excuses for poor quality, the other, feeling challenged, will do a far better job. The people responsible for this project were of the second variety. And things did go wrong. There were breakdowns of equipment; occasionally instructors failed to appear; the materials did not always arrive at the receiving sites on time; and sometimes there was not sufficient time for the preparation or advertising of the courses. But, by and large, all these difficulties were met with improvisation and good humour. Of course there were times when annoyance and frustration got the upper hand, but there was a general determination to keep things running smoothly both at BCIT and at the receiving sites.

In the control room at BCIT, from January 1980 on, three people were doing the work of six to ten: Robert Nason[1], David Billman and Deanna Giles[2], kept things going where others might have given up. The overall smooth running of the technical aspect of the project is a tribute to their knowledge and enthusiasm.

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[1] Robert Nason, Technical and Facilities Co-ordinator

[2] David Billman and Deanna Giles, full-time technical producers seconded from the Broadcast Communications Department of BCIT.

During the first term, Nason had the help of nine students in their fourth term in the Broadcast Communications Department Programme. The students worked part-time and, collectively, gave 25 hours per week to the project. Amongst these students were Billman and Giles who joined the project as full-time employees on January 22, 1980: both were straight A students.

At the receiving sites, the co-ordinators and other administrative staff were usually doing the work for the project either as a part-time occupation or on top of their usual work. Willing as people are to work under restrictive conditions, it should never be more than a sometime thing. Permanent IITV, to be entirely successful, demands sufficient time, money and human resources and a careful study of all the sophisticated and various ways in which this medium can be used. Without these, few people would be willing to work with this degree of stress for any length of time, despite its many rewards.

WHY BY SATELLITE?

Education via television is no longer a new idea, but the advent of communication via satellite has given us our most modern technological means for reaching far more widespread audiences[1]. Although several commercial or public television stations using different channels could, by co-operation, reach as wide an audience as that covered by the satellite signal, the height of a satellite above the earth makes it possible for a single transmission to reach people scattered over enormous areas[2]. This gives us two important advantages over conventional television; cheaper operating costs and the ability to reach a specific, but very widespread audience with one signal. The specificity of an audience is governed by who can receive the transmitted signal. In the case of Anik-B, the terminals tuned to receive the signal from the satellite were limited to widely separated college classrooms which students attended to take advantage of the proffered programmes. Normal television requires that the would-be recipient acquire a television set which he can tune to receive only those signals available to his area. In addition to the special receiving equipment, the satellite signal can, if need be, be fed into the cablevision system as was done in Whitehorse during the project. The third major advantage to education via satellite is the potential it offers the students to interact with each other and with the instructor. With these three major advantages, it is highly probable that distance education via satellite will become a reality.

Canada is foremost in the field of domestic satellite technology and this Canadian experiment was also first in the field of interactive education by satellite for term-length undergraduate programmes.

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[1] This statement is not intended to disregard Telidon. However, since the software for the computer tie-in to satellite communication is not yet available for education it cannot properly be discussed here.

[2] The western spot beam covers British Columbia and 90% of Alberta.

The idea for British Columbia's pilot project in IITV came originally from the federal government some five years ago. At that time, Canada and the USA formed a partnership for the production and launching of the Communications Technology Satellite Hermes. Hermes was the forerunner of Anik-B and British Columbia's first venture into distance education by satellite. BCIT was one of the originators of the Hermes programmes televised through the facilities of the Provincial Educational Media Centre (PEMC). The experience gained at that time proved a useful base for the Anik-B project.

Although Anik-B was launched in December 1978, and DOC allocated satellite time in February 1979, this time was not to be available to the IITV project until later in the year on October 1. It was during the eight months between these two dates that the questions of what? where? who? and how? were thrashed out.

The initial answers to these questions were that regular classroom lectures would be televised live from the newly modified BCIT classroom studios to chosen receiving sites around the province: with this, the Anik-B Interactive Instructional Television Project was born[1].

The initial satellite time made available to the project was from October 1, 1979 to May 31, 1980 (18 hours per week). The project was to have met, and indeed did meet, its objectives within the time stated and it is this period which is reviewed here.

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[1] Appendix 1 gives details of the agencies and individuals who were responsible for organizing and implementing the project.

INSTALLATION OF THE EQUIPMENT

By October 1, 1979, the necessary equipment for transmitting from BCIT and receiving at the receiving sites had been supplied and installed by DOC. There were two types of receive terminal: although both types could receive video and audio signals, only one was capable of interacting directly with the BCIT classrooms by telephony audio (TVRT). The other, a low cost earth terminal (LCET) did not have this capability and audio response could only be made by dialling a land line number which was patched into the system in the BCIT control room by means of a modified speaker telephone.

Five fully interactive sites were chosen by Dr. W. Hardwick, Deputy Minister of the Ministry of Education in consultation with David Brousson, Dean of Continuing Education and Industry Services, BCIT. These were:

Prince George	-	College of New Caledonia
Cranbrook	-	East Kootenay Community College
Port Alberni	-	North Island College
Terrace	-	Northwest Community College
Dawson Creek	-	Northern Lights College

When it later became apparent that a sixth terminal was available, William Robertson, Head of the Distance Education Department, BCIT, suggested Whitehorse as the sixth interactive site. The Ministry of Education and the federal Department of Communications agreed that BCIT should invite the Yukon Department of Education to participate. This invitation was accepted and the sixth TVRT was installed at:

Whitehorse - Yukon Vocational and Technical Training Centre.

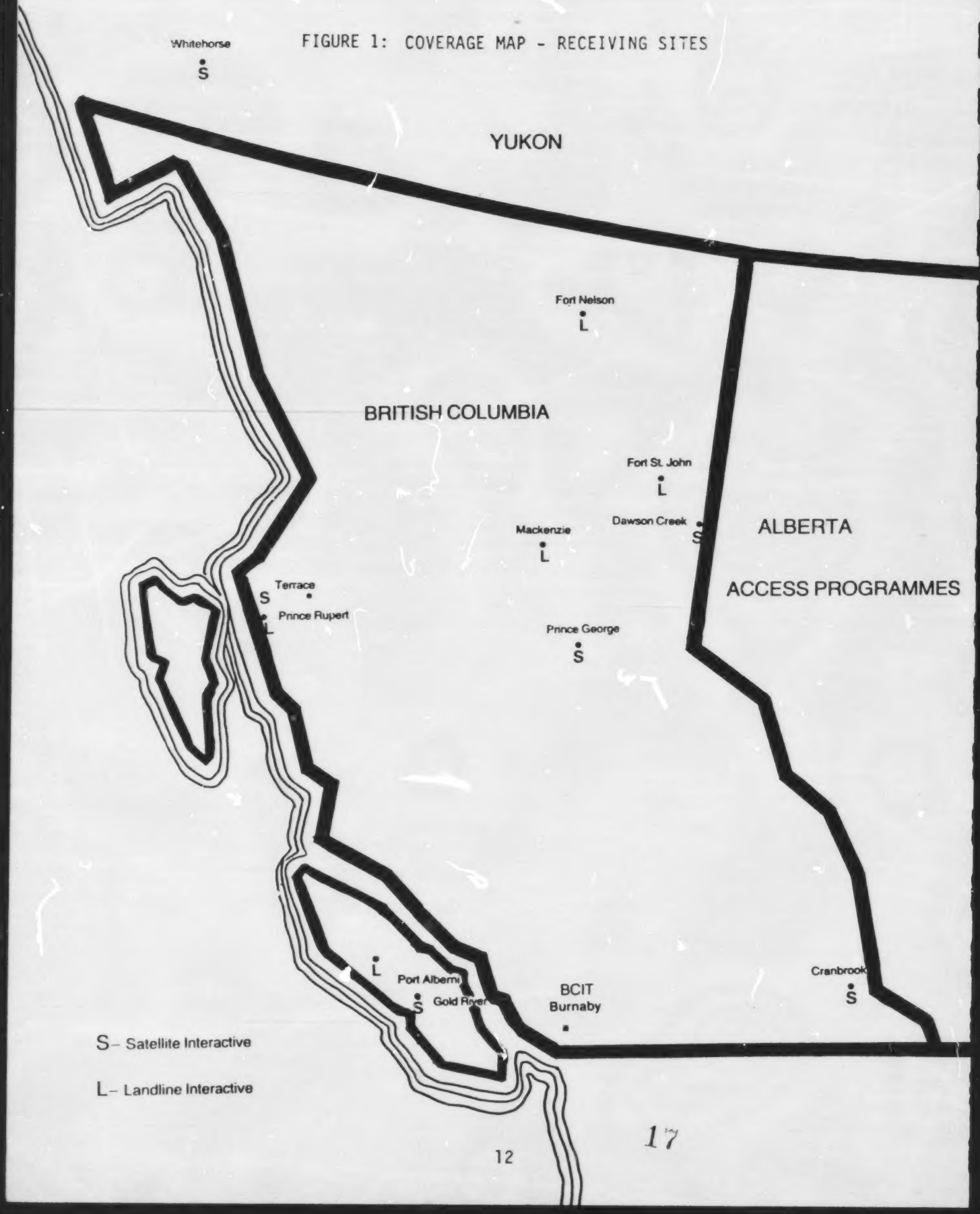
As LCETs were confirmed for delivery by DOC, participating colleges selected secondary sites within their respective regions. These additional sites were:

Fort St. John	-	Northern Lights College
Fort Nelson	-	Northern Lights College
Prince Rupert	-	Northwest Community College
Gold River	-	North Island College
Mackenzie	-	College of New Caledonia

Figure 1 shows the locations of the receiving sites.

Interaction was provided from these sites by conventional telephone lines. A complete technical description of the equipment used will be found in report No. 2 entitled "The Technical System and Its Operation".

FIGURE 1: COVERAGE MAP - RECEIVING SITES

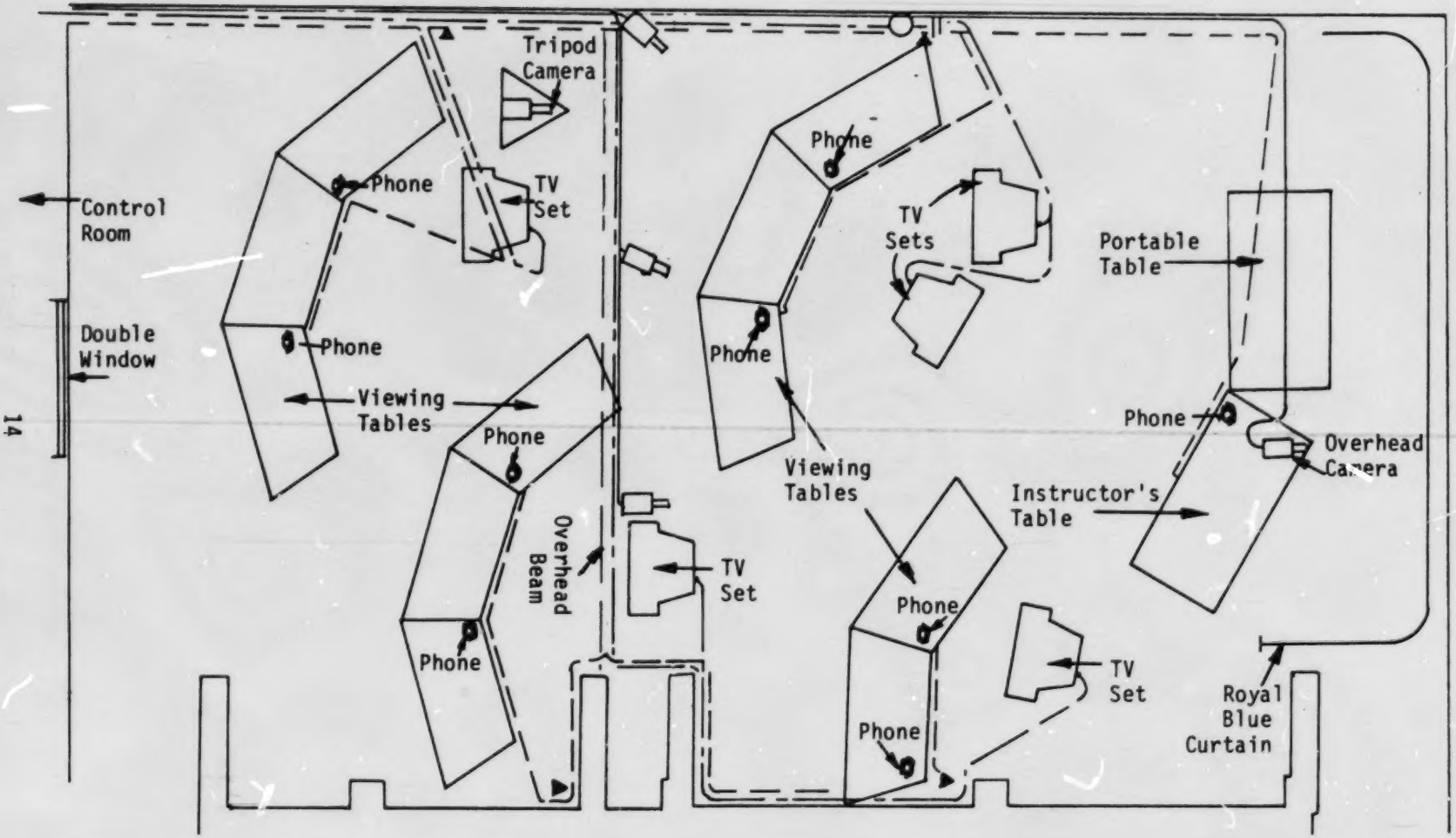


CLASSROOMS

At BCIT, two classrooms were specially equipped with television sets, cameras and telephones. One was the regular classroom where the instructor taught, the other accommodated overflow when the classes were too big to be held in one room. The following diagram (Fig. 2) shows the set-up of the classroom with the instructor's area at the front.

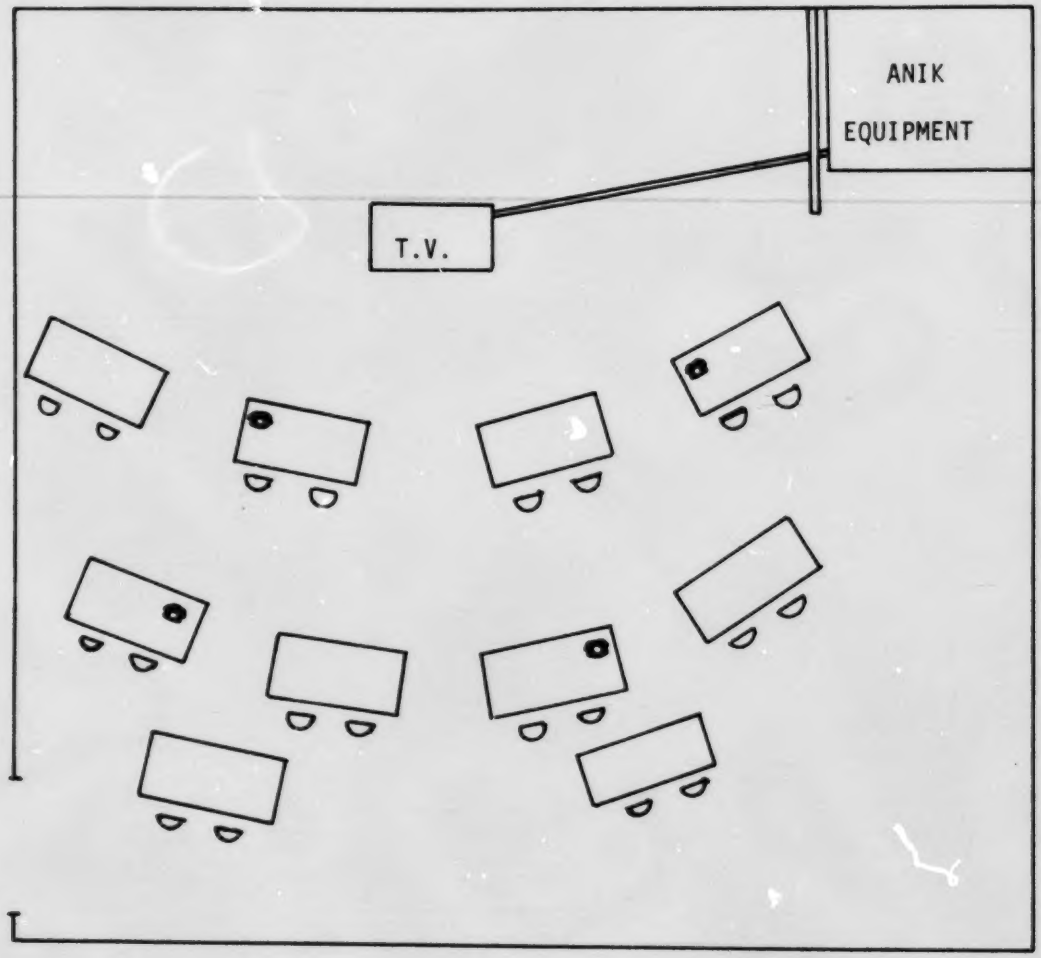
Classrooms at the receiving sites varied in size, layout and location. Figures 3, 4 and 5 show representative layouts of receiving classrooms. Because of financial and space constraints, the choice of space for the IITV classrooms was not always the best: they ranged from the specially adapted area at BCIT to the sharing of library space at one site and the conversion of a storeroom, complete with a popcorn machine, at another. In all cases, both students and administrators accepted any necessary limitations and learnt from them what would be required should the project become an integral part of British Columbia's educational system.

FIGURE 2: FLOOR PLAN - STUDIO/CLASSROOM



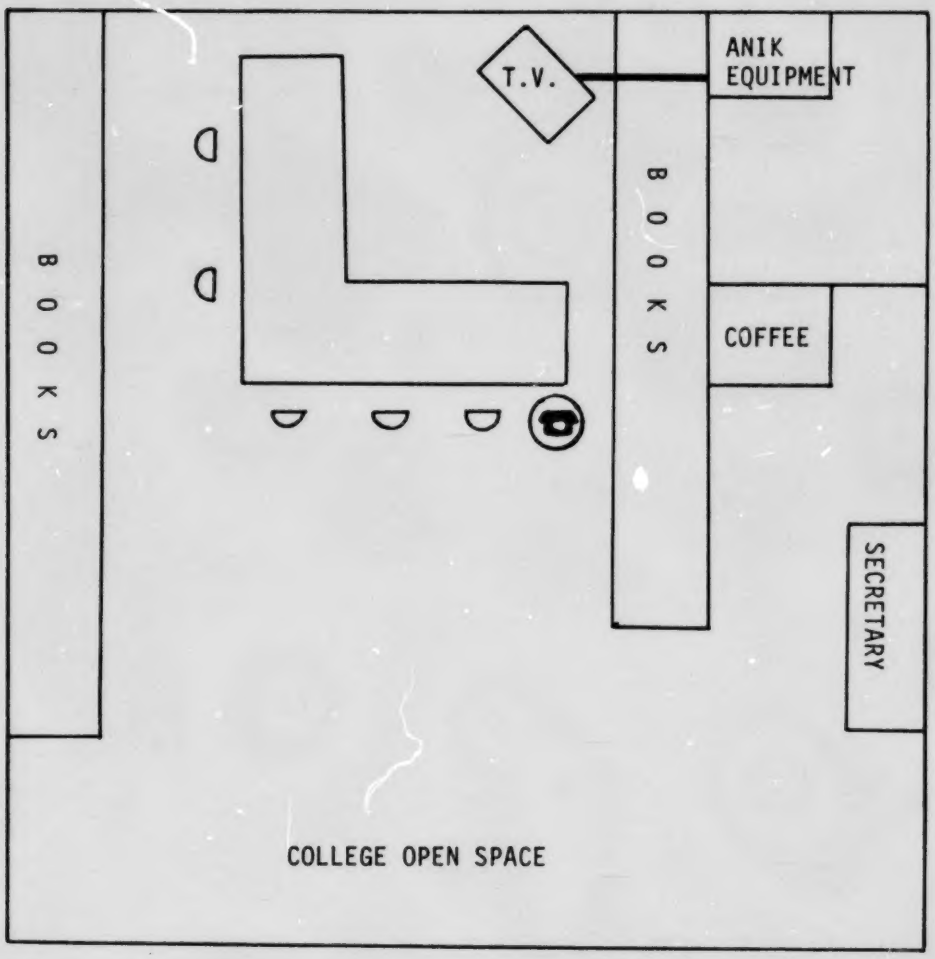
Source: Bing, Richard. BCIT Physical Resources

FIGURE 3: PORT ALBERNI CLASSROOM



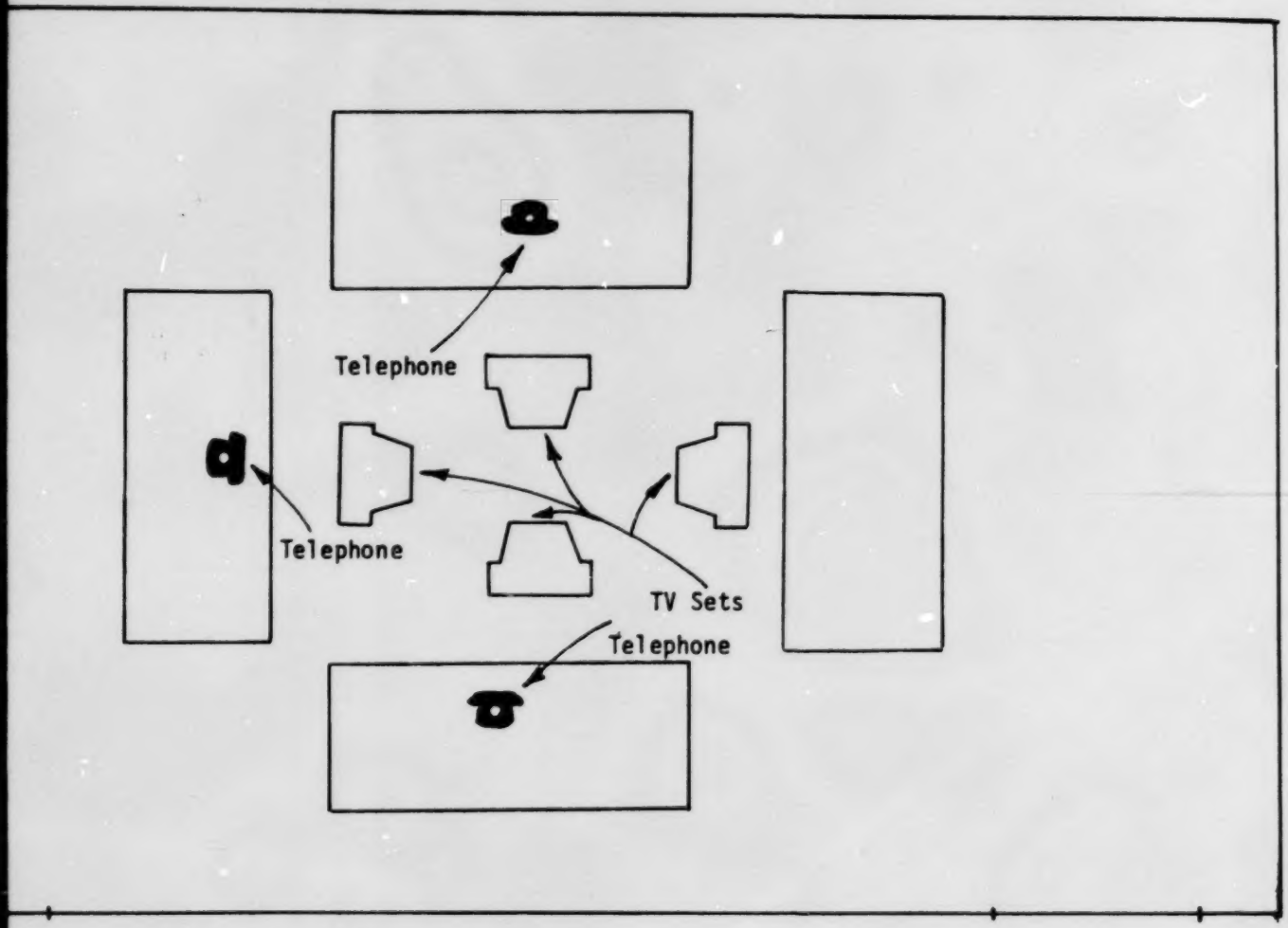
This was one of the sites where interaction was via the satellite.

FIGURE 4: GOLD RIVER CLASSROOM



This was one of the sites where interaction was by landline.

FIGURE 5: CRANBROOK CLASSROOM



COURSES BROADCAST

With the physical plant organized and ready to go, the first term started with regular BCIT courses selected by the participating centres. The results of this selection were courses in Mining[1], Forest Utilization, Refresher Modules for Graduate Nurses, Construction Administration, Reading and Study Skills and Careers in the Hospitality and Tourism Industry, all from the regular curriculum at BCIT. Since there was more programming time available than these courses could fill, additional courses were broadcast by BCIT for the Ministry of Communications, Transport and Highways[2].

Prior to the beginning of the first series of IITV classes, an additional five hours of broadcast time were released by DOC and the Ministry of Highways and the University of Victoria were invited to provide courses through Anik-B. The Ministry of Highways and BCIT jointly offered Concrete Technology, Survey, and Geology and Soils. Each week the University brought Faculty of Education instructors 50 miles by chartered float plane to offer the course Supervision of Instruction. All courses were broadcast live. However, back-up video tape recordings were made for distribution to receiving sites in case of equipment breakdown. Each such tape was erased at the end of three weeks unless the instructors asked that their tapes be kept longer for library use. In addition, some tapes were kept for the archives.

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[1] See Appendix 2 which gives a complete listing of all events broadcast in both terms.

[2] Now called the Ministry of Transportation and Highways and abbreviated to Ministry of Highways.

REACTIONS TO THE PROGRAMMES

Evaluations were made at weekly intervals throughout the project. During the first term it was found that the courses offered by the Ministry of Highways and the University of Victoria were well received. The specific audiences they drew were composed of people who could find time to attend them or were given work-release time. Another reason for the enthusiastic reception of the Ministry of Highways and the University of Victoria's courses is that they were in high demand by certain groups of people who received credit or some form of professional upgrading. This, in part, influenced the decision to broadcast more such programmes and other events during the second term.

Of the BCIT courses, those that ran in the evening were well received whether or not they carried credit. This reflected both high interest for the student and time available to study[1]. The day school courses which ran in the afternoon were not so well received. The reasons for this, gathered from the ongoing evaluation measures administered throughout the first term, were that:

- some courses conflicted with those which were already being taught by instructors at some of the colleges.
- some courses were being offered in the early afternoon when most part-time students were at work and therefore unable to attend.
- some non-college students found the level of instruction either too high or too low.
- few courses selected by the colleges could be integrated into their regular day-time programmes and were handled as special events or continuing education courses.

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[1] A full evaluation of all aspects of the courses is given in report No. 4 entitled "Evaluation Perspectives".

Throughout the life of the project, weekly teleconferences were held through the satellite system between BCIT and the co-ordinators at the receiving sites. This gave the co-ordinators the chance to become familiar with the techniques of the satellite interactive telecommunications system. And, based on this practical experience, they were better able to make recommendations for changes within the system. It was during these conferences that the need was expressed for more courses designed for professional upgrading. Simultaneously, several outside agencies[1] approached BCIT with course suggestions which were passed on to the colleges. These agencies also stimulated interest among contacts in the college regions. The contacts, in turn, approached the colleges for more information.

On the basis of this three-pronged approach - student evaluations, the weekly teleconferences and the stimulation from the outside agencies - the decision was made to alter direction somewhat for the second term which began on January 1, 1980. For this term, more hours[2] were made available on the satellite and, therefore, more programmes could be broadcast.

The Ministry of Highways and the University of Victoria continued with their courses from the first term. BCIT continued those of their courses which had been scheduled to run for the two terms. In addition, several short, community interest seminar series were scheduled. These proved to be well received[3].

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[1] University of Victoria, University of British Columbia, Outdoor Recreation Council, B.C. Recreation Association, Ministry of Highways.

[2] An additional 14 hours per week were made available thus bringing the total for the second term to 32 hours per week.

[3] See Appendix 2 for a list of all programmes broadcast in Terms 1 and 2.

EFFECT ON LEARNING

The prime objective of any course of study is that learning shall take place to a specified standard in given conditions. We already know that this objective can be reached in a variety of methods of distance education including education via ordinary television. Thus, it is reasonable to assume that IITV should achieve comparable results since it has potentially all the advantages of other means of distance education with the additional advantage of instant interaction with the instructor and with the other students taking the course.

As the project progressed, experience showed that certain changes in the approach to the medium needed to be made if learning via IITV was to be as effective as by other means. These changes were needed in various areas - instructional, administrative and technical - some were made during the project, others must await the inception of a permanent service. However, certain statements regarding the effect on learning can be made:

1. Evaluation[1] showed that:
   a) results were comparable to those obtained in the regular classroom setting.
   b) most students were prepared to take additional courses via IITV if they were made available.
   c) there was high acceptance of the IITV system.

2. The Stanford findings[2] were confirmed.

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[1] See report No. 4 "Evaluation Perspectives" for a review of these findings.

[2] See: Gibbons, J.F., et. al. Off Campus Higher Education Engineering Instruction Using Videotape, Final Report. Stanford: Stanford University, 1976.

For the people involved in this project, IITV was a very new medium and much was learned about the effects it can have on learning outcomes if the capabilities and the limits of the medium are not well understood and taken into consideration. It is clear that a study of these capabilities and limits in relation to the user's needs and level of knowledge of the medium must be included in an overall review of what will make IITV as successful as it can possibly be. Thus, there are some questions still to be answered because of some of the unique features of the system and the particular constraints of the project.

HOW ADEQUATE WAS THE EQUIPMENT[1]?

Because the project was deliberately undertaken on a restricted budget so as to ascertain general results before investing a large amount of money in a permanent system, the equipment bought could not all be of professional, near-broadcast standard. The decision was made to spend most of the available money on the equipment which formed the heart of the transmitting system. This meant that some equipment could not be bought at all and that the television cameras would have to be less versatile than they could have been had more money been available. Even so, the staff in the control room and the camera operators coaxed remarkably good work from the equipment they had. It was seldom that the transmitted picture was of unacceptable quality, or that breakdown prevented either transmission or reception. Breakdowns to video equipment were corrected during off air hours and no transmission delays were attributed to studio equipment. The few programme interruptions that occurred were caused by local failure of satellite receiving equipment which was usually quickly repaired.

It is clear that the setting-up of a television station, which, in effect, is what the BCIT transmitting studio is, requires the careful matching of equipment to the job it is expected to do. In some cases, better quality equipment of the kind currently installed will do a better job than was possible for the project. If IITV is to continue, equipment equal to the job and the possibilities of the medium must be installed.

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[1] This is fully documented in the second project report entitled "The Technical System and Its Operation".

COURSE PRESENTATION AND THE INSTRUCTOR

One objective of the project was to ascertain whether the medium was suitable for the transmission of regular classroom sessions. The idea was to reproduce the classroom atmosphere as faithfully as possible. However, this was not what happened. The differences between teaching in a regular classroom and teaching in front of a camera in a room which physically only approximates a classroom soon became evident.

Instructors and students alike quickly discovered those classroom techniques which did not fit the new medium and, in the process, discovered what was needed. For example, whatever is written on the chalkboard needs to be larger and heavier than it need be in the regular classroom if the camera is to pick up a clear readable image. Anything the instructor writes at his desk which is to be picked up by the fixed overhead camera must be larger than normal writing. Visual aids of any kind must be very well executed if they are to be seen by the remote audiences clearly and without strain. These are fairly simple things which any instructor will learn to do quickly and automatically. However, of a different kind are those techniques which an instructor uses to carry his words more tellingly. These are the body language messages which we all use instinctively. The instructor who "comes across" best on television has a certain panache, an enthusiasm which his body movements, his facial expressions and the varied use of his voice convey. Some people naturally have this kind of "presence": some can learn it, some seem unable to. This ability is desirable in any instructor, but is essential for television presentations, as the students made abundantly clear in their evaluations.

There are two other limitations, at least for this project, which the classroom doesn't have - camera range and microphone cords. With cameras set in fixed positions, the instructor is physically constrained; he must be constantly aware of remaining within camera range. The cord from the lavalier microphone which hangs around his neck also limits his range and can entangle his feet. Not only can this be very inhibiting for those instructors accustomed to moving about the classroom, in some instances, such as a laboratory setting, the movement can be an essential feature of the teaching/learning process. It is clear then, that a camera capable of following the movements of the instructor is advisable in most instances and an absolute necessity in others and that wireless microphones would be an advantage. It is equally clear that careful instruction and practice in how to make the most effective use of the medium must be given to all those new to this method of instruction.

There are other factors which govern successful learning by IITV and these are treated at some length in the report entitled "Evaluation Perspectives", the fourth of the project reports.

Briefly, course presentation as well as the instructor's style of delivery need careful tailoring to the limits and special latitudes of distance education by IITV. If this is not done, while the adverse effects on some learning may be small, many students will experience sufficient dissatisfaction either to turn them away or to make learning a burden to them.

ADMINISTRATION[1]

Planning for the overall conduct of the project began at BCIT on March 1, 1979. At this meeting, under the chairmanship of Brousson, a committee, to be known as the IITV Task Force, was struck: it was to be responsible for the technical and physical facilities. During subsequent meetings, the advice and expertise of representatives from several organizations was sought. These included the federal Department of Communications, the B.C. Ministry of Education, and the participating colleges, Provincial Education Media Centre and Stanford University provided additional expertise to the planning committee.

The overall administration of the project at BCIT, was the responsibility of Brousson; the day-to-day operation and administration was the responsibility of Robertson and some members of his staff. At the receiving sites, the responsibility lay with designated regular staff members or part-time employees hired for this work[2]. To all these people, IITV on the scale of the Anik-B project was very new. In general, the day-to-day scheduling ran according to plan, but from time to time problems arose: course materials would go astray; communication between BCIT and the receiving sites would suffer temporary breakdown; weather conditions[3] would disrupt reception of the satellite signal, or would prevent students from attending class. Whatever occurred to disrupt the smoothness of the operation, a way was found to repair, replace or repeat.

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[1] Administration of the project is dealt with in detail in report No. 6: Administrative Structures and Procedures.

[2] The names of all the people involved in the administration of the project are listed in Appendix 1 to this Overview.

[3] Moisture from rain, snow, or fog between the antenna and the satellite will reduce the signal strength particularly on the fringes of the signal pattern. Thunderstorms can disrupt the local signal temporarily through electrical disturbance.

Because of the constraints of time and money and their effects on the people running the project, frustration sometimes ran very high. However, almost without exception, these times of difficulty were used as spurs to innovation and renewed effort to "make things go". Had people not responded in this way, the project would probably have run well enough but not as much would have been learnt about what it takes in time, money, people, knowledge and equipment to ensure the success of a permanent venture into IITV via satellite.

SUMMARY

The project proved that its major objective could be reached: that IITV is both feasible and acceptable as a means of teaching those who, for whatever reason, cannot take advantage of the educational opportunities offered by post-secondary organizations through their own local organizations or from their local campus. Education by satellite is capable of transcending constraints of time and space and reaching students at times and in places suitable to them. After becoming used to the new system, students like it and can learn as well and sometimes more easily than by other methods of distance education. In short, as a teaching/learning tool, IITV has a great deal to recommend it.

Technologically speaking, there was never any real doubt that IITV was feasible. More important was the need to develop skills for making the best use of the medium, the equipment and for co-operating with and co-ordinating a multitude of organizations. A by-product of working with the project was the ability to see how close is the possibility of fully interactive television as a normal part of our daily lives. Once again, science-fiction can become reality. Interactive television clearly has the potential for far wider application than the simple dissemination of information.

Financially, the project showed that IITV can be done relatively cheaply on a restricted basis. However, it is not clear that this would be so in the case of a permanent service since the system would require considerable expansion to operate efficiently in the long term. On the other hand, the greater the number of receiving sites, the more economical the system should be. What is also not yet clear is how financially rewarding to British Columbia it will prove to be simply because a much greater part of the work force will have access to new and upgrading learning as they pursue their careers. With the inception of IITV the two biggest hurdles to education for many who want it but could not get it have been overcome: available time and geographical location with the extra bonus of <u>immediate</u>

access to tutors and fellow students. At one stroke, the isolation of so much distance learning has been eliminated, thus infusing the distance learning process with greater interest, greater chances of individual success and the as yet uncounted financial rewards for the province as a whole.

Successful administration is clearly the result of sufficient staffing with people of the right calibre. They must be conversant with the capabilities of the medium, have the student's interest at heart and be dedicated to the concept of equal educational opportunities for all.

Of all the things this project taught us, one of the most important was the value of co-operation in education. A clear example of this was the "Open House For The Health Sciences 1980" held at the University of British Columbia in March. This demonstrated not only co-operation in education but also the potential for making available vital services, in this case, medical. The two-way video and audio consultation between the UBC Cancer Control Agency and the Central Tumour Registry and Civic Hospital, Ottawa, was a perfect example of the potential for this kind of use of communication via satellite.

The ability to broadcast from UBC rather than BCIT, shows that there can be multi-originating centres. Such centres can be linked to the transmitting centre by a microwave-link as was the case with UBC's Health Sciences Open House.

The next step, one which is almost upon us, will be the reception of IITV in people's homes. In this case, interaction could be via one's own telephone. Later, but still not far away, people will be able to buy a small computer which will be connected to their television sets. This will enable them to call up any information of their choice, educational or otherwise, thus living-room learning will become as ordinary an occurrence as classroom learning is today. The technology is available now. It remains only to put into practice the combination of co-operation and technology for a truly exciting future for distance education in British Columbia. This concept can be broadened to embrace all aspects of education on an international scale.

Appendix 1

Agencies And Individuals Responsible For The Setting Up And The Operation Of The Project

AGENCIES AND INDIVIDUALS RESPONSIBLE
FOR THE SETTING UP AND THE OPERATION OF
ANIK-B
INTERACTIVE INSTRUCTIONAL TELEVISION PROJECT

Contracting Agencies

Canada Department of Communication
British Columbia Ministry of Education, Science and Technology

Operating Agency

British Columbia Institute of Technology
Department of Distance Education
Continuing Education and
Industry Services Division

Television Originating Centre

British Columbia Institute of Technology
Burnaby, B.C.

Receiving Sites

A. Satellite Audio Return

- Port Alberni
- Terrace
- Prince George
- Cranbrook
- Whitehorse
- Dawson Creek

B. Land-line Audio Return

- Gold River
- Prince Rupert
- Mackenzie
- Fort St. John
- Fort Nelson

Participants

A. Originating

- Ministry of Education, Science and Technology
- British Columbia Institute of Technology
- Ministry of Communications, Transport and Highways
- Ministry of Labour, Building Standards Branch
- Ministry of Provincial Secretary, Recreation Branch
- University of Victoria
- North Island College
- University of British Columbia
- Alberta Educational Communications Corporation

B. Receiving Institutions

- North Island College
- Northwest Community College
- College of New Caledonia
- Northern Lights College
- East Kootenay Community College
- Yukon Vocational and Technical Training Centre

In addition the signal is being received in Alberta at

- Medicine Hat
- Edmonton
- Grand Prairie
- Fort McMurray
- High Level
- Grouard
- Peace River

Personnel Responsible

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

- Dr. Walter Hardwick, Deputy Minister
- David Roach, Executive Administrator

FEDERAL DEPARTMENT OF COMMUNICATIONS

- John Thwaites, Social Economic Advisor, Pacific Region Office, Vancouver
- Terry Kerr, Anik-B Project Manager
- Doris Jelly, Assistant Anik-B Project Manager
- John Day, Manager, Communications Systems Engineer
- Ken Gustafson, Project Co-ordinator
- Ron O'Connor, Project Co-ordinator
- Bill McConnell, Station Manager

BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

- David Brousson, Dean, Continuing Education and Industry Services
- Bill Robertson, Head, Distance Education Department
- Rob Nason, Technical and Facilities Co-ordinator
- David Billman, Technical Producer
- Deanna Giles, Technical Producer
- Derek Knox, Programme Developer
- Joan Cooper, Co-ordinator, Directed Study Centre

NORTH ISLAND COLLEGE

John W. Tayless, Director of Academic Programmes

Port Alberni
- Joan Frohn-Nielsen, Centre Administrator
- George Knox, Technical Co-ordinator, ANIK-B

Gold River
- Dr. David N. Hudson, Centre Director and Co-ordinator, ANIK-B

NORTHWEST COLLEGE

Terrace
- Gary Karlsen, Co-ordinator of Distance Education and ANIK-B
- Tom Knox, Assistant Co-ordinator (part-time) ANIK-B

Prince Rupert
- Laurie Jones, Programme Developer & Co-ordinator, ANIK-B

COLLEGE OF NEW CALEDONIA

Prince George
- Charles McCaffray, Principal
- Dave Snider, Liaison Officer
- Stewart Berry, Head Audio Visual Dept. and Technical Co-ordinator, ANIK-B

Mackenzie
- M. Nancy Jennings, Regional Director and Co-ordinator, ANIK-B

EAST KOOTENAY COMMUNITY COLLEGE

Cranbrook - Dr. Larry Szalanski, Dean, Academic Technical
April 1979 - March 1980 - Joe Selby, Co-ordinator Business Administration and Co-ordinator, ANIK-B
- Barry Brooks, Computer Manager and Technical Co-ordinator, ANIK-B

March 1980 - May 1980 - Dale Fike, Dean, Adult Education
- Kathryn Teneese, Adult Education Co-ordinator
- Judy Becker, Programme Co-ordinator, ANIK-B

NORTHERN LIGHTS COLLEGE

Dawson Creek - C.A. (Al) Westcott, Dean of Instruction and Programme Co-ordinator, ANIK-B

Fort St. John - Margaret J. Cleaveley, Principal and Co-ordinator, ANIK-B

Fort Nelson - A.V. Walker, Principal, Administrator and Co-ordinator, ANIK-B

YUKON VOCATIONAL AND TECHNICAL TRAINING CENTRE

Whitehorse - Steve Schaffer, Vice-Principal and Administrator
- Muriel J. McRae, Co-ordinator for ANIK-B

Appendix 2

Course Selection Process And Its Results

COURSE SELECTION PROCESS AND ITS RESULTS

ANIK-B

INTERACTIVE INSTRUCTIONAL TELEVISION PROJECT

Course Selection

It was decided that the courses offered were not only to be of high quality but that they should be of special interest to people in the college regions. They were also to be courses normally available only to those students attending BCIT. The courses were designated either for credit or for professional upgrading.

In April, 1979, a programme committee, consisting of representatives from each of the Engineering, Business, Health and Continuing Education Divisions of BCIT, were asked to select a number of courses from their respective areas and to submit a list of the selected courses with brief course descriptions.

Instructors were told that regular courses were to be taught in a regular way over a full instructional year in order to test the system in a traditional classroom setting.

The programme committee came back with a list of sixty-three courses. The list was sent to the colleges with an invitation to select the six courses they would like to see given priority.

The following list was drawn from the responses:

Day Courses	Night Courses
Business Math	Refresher Modules for Graduate Nurses
Mining	Supervisory Skills
Forest Utilization	Construction Administration

This list was sent back to the colleges for approval. Business Math and Supervisory Skills were dropped because of lack of interest by a majority of the colleges.

The Project Co-ordinator[1] from BCIT selected two additional courses, Hospitality and Tourism and Reading and Study Skills. These were subsequently approved.

The University of Victoria and the Department of Highways were approached to fill in the other openings in the transmission time.

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[1] Mr. W.D. Robertson, Head, Distance Education

The final list of courses offered in the first term was as follows:

Concrete Technology
Construction Administration
Forest Utilization
Geology and Soils
Careers in the Hospitality and Tourism Industry
Mining
Refresher Modules for Graduate Nurses
Reading and Study Skills
Technical Surveying 1 - Metric
Supervisory Skills for Educators ED-B 435

In the second term, some of the first term courses were dropped and others were included. The following shows a complete list of all events aired during the project.

1. Courses

Anatomy and Physiology Review
Careers in the Hospitality and Tourism Industry: 18.902
Concrete Technology
Construction Administration: 40.954
Estates for Legal Assistants and Legal Secretaries: 8033SA
Evaluation (Instructor's Diploma Program): ID104
Foreclosure Actions: 7962SA
Forest Utilization: 46.101
Geology and Soils 1
Mining: 50.102/202
National Building Code: 40.915
Psychology 111 - Child Development 1 - The Growing Years
Reading and Study Skills: 31.905
Recent Developments in B.C. Law
Refresher Modules for Graduate Nurses: 76.916

Supervision of Instruction: ED-B 435
Teaching Reading in the Primary Grades: ED-B 480
Technical Surveying 1 - Metric

2. Seminars

Alcoholism: Current Concepts and Treatment
Avalanche Information for the Winter Recreationist
Community Schools
Family Law - "After the Honeymoon"
Forestry Law: 7961 SA
Genetics in Medicine
History and Current Events
Management of Forest, Range, and Recreation Resources
Management of Recreation Facilities
News Media Forum
Playground Leadership and Pre-school Recreation
Professional Responsibility in Real Property Transactions: 8034 SA
Public Administration
Real Estate Series
Special Programmes for Builders
UBC Continuing Pharmacy Education

3. Specials

BCIT Broadcast Department
Opening of Satellite Network
UBC Health Sciences Open House

4. Teleconferences

Anatomy and Physiology
Association of B.C. Professional Foresters (A.B.C.P.F.)
Association of Canadian Community Colleges Conference
Association of Student Awards Personnel of B.C.

Audio Visual Communication Association
British Columbia Institute of Technology Counselling Department
British Columbia Association of Continuing Education Administrators
Broadcast Educators Association of Canada
Building Inspectors Annual General Meeting
Building Standards Branch
Council of Principals
Forest Fire Management
Genetics in Medicine
IITV Coordinator's Planning Conference
Industry Services
Librarians
North Island College
Open Learning Institute Exploration
Programme Planning
Project Evaluation Review
Recreation Seminars
Resource Tech
The Continuing Legal Education Society of B.C.
Weekly IITV Users Administration Teleconference
Test of Facsimile Equipment

5. Alberta ACCESS Programmes

Adventures in History
Athabasca University
Basic Horse Care
Basic Photography
Car Owners Maintenance Guide
Classics Dark and Dangerous
Coping with Stress
Episodes and Issues in Canadian History
Explorations in the Novel
Family and the Law
Finding My Own Way
Focus on Childhood

In the Shadow of the Giant
Library Course - Technical Processing
No Time to Lose
Olympic Profiles
Planet of Man
Renewable Society
The Age of Uncertainty
The Ascent of Man
World in Your Kitchen